

Appendix D

Water Quality and Temperature Data

APPENDIX B

WATER QUALITY AND TEMPERATURE DATA

Surface water quality data is available for the following water resources in the project area:

- Mendota Wildlife Area (Table B-1);
- Mendota Pool (Table B-2);
- San Joaquin River below Mendota Dam (Table B-3);
- Delta Mendota Canal (Table B-4); and
- California Aqueduct (Table B-5).

Original water quality data and source tables, when available, are presented as Attachments to Appendix B.

Mendota Wildlife Area

Table B-1
Mendota Wildlife Area Water Quality Data July 8 - September 8, 1999

Constituent	Units	Median	Minimum	Maximum	# of Samples
Alkalinity	mg/L	103	90	120	3
Bicarbonate	mg/L	117	110	130	3
Boron	mg/L	0.2	0.2	0.2	2
Calcium	mg/L	19	18	21	3
Carbonate	mg/L	20	20	20	3
Chloride	mg/L	102	68	148	3
Magnesium	mg/L	9	9	10	3
Nitrate	mg/L	2.3	1.6	2.9	3
pH	SU	8	8	8	1
Potassium	mg/L	2	2	3	3
Selenium	µg/l	ND	ND	ND	3
Sodium	mg/L	95	60	142	3
Specific conductance	µS/cm	689	513	920	3
Sulfate	mg/L	72	55	89	2
Total dissolved solids	mg/L	400	310	530	2

Notes: mg/L - Milligrams per liter.
µS/cm - MicroSiemens per centimeter.
µg/l - Micrograms per liter.
ND - Not detected.
NR - Not reported.
SU - Siemens unit.

Source: San Joaquin River Exchange Contractors Water Authority 1999.

Mendota Pool

Table B-2
Mendota Pool (Various Locations) Water Quality Data January 1994 - December 1999

Constituent	Units	Median	Minimum	Maximum	# of Samples
Alkalinity	mg/L	80	60	120	12
Arsenic	mg/L	0.05	0.05	0.05	18
Bicarbonate	mg/L	97	80	130	12
Boron	mg/L	0.257	0.002	0.9	76
Calcium	mg/L	17	14	21	12
Carbonate	mg/L	2	ND	20	12
Chloride	mg/L	62	6	148	39
Chromium	mg/L	0.007	0.006	0.014	18
Copper	mg/L	0.005	0.003	0.012	18
Lead	mg/L	0.003	0.003	0.005	18
Magnesium	mg/L	9	7	10	12
Nitrate	mg/L	32	ND	380	13
pH	SU	7.60	6.42	8.74	30
Potassium	mg/L	2	2	4	12
Selenium	µg/l	0.2	ND	2.9	93
Sodium	mg/L	62	3	142	30
Specific conductance	µS/cm	388	52	1200	433
Sulfate	mg/L	63	18	140	37
Temperature	degrees C	76.2	72	81.3	8
Total dissolved solids	mg/L	296	40	758	89
Zinc	mg/L	0.010	0.004	0.031	18

Notes: µg/L - Micrograms per liter.
mg/L - Milligrams per liter.
µS/cm - MicroSiemens per centimeter.
ND - Not detected.
NR - Not reported.
SU - Siemens unit.

Source: San Joaquin River Exchange Contractors Water Authority 1999; Reclamation 2000.

San Joaquin River Immediately Below Mendota Dam

The primary area of concern for water quality downstream from Mendota Dam begins in the reach downstream from Sack Dam, where virtually all of the flow consists of agricultural drainage (California Regional Water Quality Control Board [CRWQCB] 1988). Constituents of primary concern, in addition to selenium, include TDS, and boron.

Table B-3
San Joaquin River Below Mendota Dam Water Quality Data, January 8 - December 2, 1999

Constituent	Units	Median	Minimum	Maximum	# of Samples
Boron	mg/L	0.2	0	0.4	17
Calcium	mg/L	20	4	40	28
Chloride	mg/L	48	2	80	6
Magnesium	mg/L	11	1	22	27
pH	SU	NR	6.9	8.5	38
Potassium	mg/L	1.8	0.8	3.7	18
Selenium	µg/l	1.6	0	10	10
Sodium	mg/L	35	3	105	28
Specific conductance	µS/cm	405	43	887	28
Sulfate	mg/L	44	2	74	6
Total dissolved solids	mg/L	266	43	564	28

Notes: µg/l - Micrograms per liter.
mg/L - Milligrams per liter.
µS/cm - MicroSiemens per centimeter.
ND - Not detected.
NR - Not reported.
SU - Siemens unit.
TDS calculated = 0.618 X Mean Daily EC + 16

Source: San Joaquin River Exchange Contractors Water Authority 1999.

Delta Mendota Canal

The Delta Mendota Canal is a potential source of Level 4 water supplies for the MWA. Table B-4 presents Delta Mendota Canal water quality data collected monthly from January 1990 through December 1999.

Table B-4
Delta-Mendota Canal at Washoe Ave. Jan 1990 - December 1999

Constituent	Units	Median	Minimum	Maximum	# of Samples
Boron	mg/l	0.4	0.1	1.9	119
Flow	cfs	999	10	2660	115
Mercury	mg/l	0.116	0.005	0.903	96
pH	units	7.68	6.07	9.72	116
Selenium	µg/l	3.4	0.4	24	118
Specific Conductance	µS/cm	626	165	1880	117
Total Dissolved Solids	mg/l	403	118	1178	117
Turbidity	NTU	30	6	200	104

Notes: µS/cm - MicroSiemens per centimeter.
µg/L - Micrograms per liter.
mg/L - Milligrams per liter.
ND - Not detected.
NR - Not reported.
NTU - Nephelometric turbidity units.
SU - Siemens unit.
Mean detection limit used for purposes of averaging on values below detection limit.
TDS calculated = 0.618 X Mean Daily EC + 16

Source: Reclamation 2000.

California Aqueduct

The California Aqueduct via Westlands Water District Laterals is a potential source of Level 4 water supplies for MWA. Table B-5 presents California Aqueduct water quality data collected monthly from January 1995 through March 2000. Water quality in the Westlands Water District Laterals is similar to the source waters (California Aqueduct) but growers can pump groundwater into the canals as long as the combined water mixture meets applicable water quality standards (Bettner 2000). Additionally, Westlands Water District Laterals could possibly receive irrigation drainage. Due to possible mixing of groundwater and irrigation drainage with California Aqueduct water, water quality in the Westlands Water District Laterals is likely to vary significantly from the data in Table B-5.

Table B-5
California Aqueduct, O'Neill Forebay, Jan 1995 - March 2000

Constituent	Units	Average	Minimum	Maximum	Number of Samples
Alkalinity	mg/l	66	35	88	63
Arsenic	mg/l	0.002	0.001	0.003	62
Boron	mg/l	0.2	0.1	0.3	61
Bromide	mg/l	0.15	0.05	0.43	62
Calcium	mg/l	18	10	27	63
Carbon-Total	mg/l	3.7	2.5	8	61
Organic					
Chloride	mg/l	50	19	128	63
Chromium	mg/l	0.006	0.005	0.007	63
Copper	mg/l	0.002	0.002	0.006	32
Fluoride	mg/l	0.1	0.1	0.1	63
Hardness	mg/l	88	46	127	63
Iron	mg/l	0.029	0.005	0.12	63
Lead	mg/l	0.002	0.002	0.002	63
Magnesium	mg/l	10	5	17	63
Manganese	mg/l	0.010	0.005	0.029	63
Selenium	µg/l	1.0	1.0	1.0	63
Sodium	mg/l	40	19	86	63
Specific	uS/cm	382	199	682	63
Conductance					
Sulfate	mg/l	37	16	74	63
Total Dissolved	mg/l	214	117	303	63
Solids					
Trihalomethane	ug/l	456	150	979	60
Formation					
Turbidity	NTU	10.9	1.8	32	35
Zinc	mg/l	2.004	0.005	6	63

Notes: µg/l - Micrograms per liter.
mg/L - Milligrams per liter.
µS/cm - MicroSiemens per centimeter.
ND - Not detected.
NR - Not reported.
SU - Siemens unit.

Source: U.S. Geological Survey 2000.

Temperature regulation for fish in the San Joaquin River is an additional water quality concern in the project area. Two of the sites, the DMC at Mendota Pool and the San Joaquin River near Mendota, have

more than 30 years of record. However, the data represent samples collected less than once per month over that period and, thus, represent sparse coverage within the period.

Table B-6
Summary of Temperature Data (degrees Fahrenheit) in the Upper San Joaquin River Basin

Site	Statistical Period		Statistical Distribution of Temperature Data							Number of observations
	From	To	Min	10 percentile	25 percentile	Median	75 percentile	90 percentile	Max	
DMC at Nees Avenue	05/06/87	09/19/88	50	61	67	72	73	76	77	9
DMC at Firebaugh	01/12/71	11/06/79	43	50	57	64	70	77	81	32
DMC at Mendota Pool	01/01/80	01/23/86	34	50	55	63	66	75	79	21
California Aqueduct at Poleline Road	07/10/52	01/09/89	39	49	54	65	74	77	82	223
San Joaquin River near Mendota	06/03/70	12/21/77	46	49	54	62	67	70	74	80
Canal - 8.3 miles south of Los Banos	04/13/51	01/09/89	40	50	56	66	73	77	88	283
	06/27/84	06/14/88	38	57	60	66	70	78	80	29

The median temperature at most of the sites shown in Table B-6 is in the low- to mid-60s. With the exception of the California Aqueduct, all stations have maximum temperatures that range from near 80 degrees Fahrenheit (°F) to the mid-80s; the maximum temperature of the aqueduct is 74 °F.

Site Groundwater Quality

Several wells were drilled or sampled on the MWA in the early 1990s. Selected data from those wells are shown in Table B-7. The data are limited to only a few of the wells. As can be seen in Table B-7, most of the well waters are high in total dissolved solids (TDS); most of the TDS data are estimated from the conductivity data shown. The minimum TDS shown in Table B-7, however, is a measured value.

In addition to TDS, boron is very high in the unconfined groundwater beneath the MWA. The State of California's agricultural water quality objective for boron is 0.8 milligrams per liter (mg/L) or 800 µg/L for use on sensitive crops. The concentrations in unconfined aquifer would be potentially harmful to most plants if the water were to be used for irrigation.

Selenium and molybdenum were analyzed in the majority of well samples shown in Table B-7. All of the selenium and molybdenum samples were below analytical detection (or reporting) limits. However, those limits were very high in many instances, particularly in the April 1992 samples. Since selenium downstream from MWA has been absent at even lower reporting limits than those shown in Table B-7, harmful levels of selenium are probably not present (CRWQCB 1988).

Table B-7
Mendota Wildlife Area Unconfined Aquifer Groundwater Quality Data

Description/name	Date	EC μS/cm	TDS mg/L	Boron μg/L	Selenium μg/L	Molybdenum μg/L
Fresno Slough No. 1	06/13/91	6,960	5,160	3,000	NR	NR
Tranquility No. 16	06/18/91	1,930	1,150	1,800	<2	NR
Mendota Wildlife Area (Traction Ranch)	03/31/92	7,800	4,200	2,000	<2	NR
Mendota Wildlife Area (not specified No. 1)	04/13/92	2,640	1,674	1,300	<4	<200
Mendota Wildlife Area (not specified No. 2)	04/13/92	5,601	3,517	2,200	<4	<200
Mendota Wildlife Area (not specified No. 3)	04/07/92	2,340	1,487	1,400	<6	<200
Mendota Wildlife Area (not specified No. 4)	04/07/92	7,760	4,861	2,100	<6	<200
Mendota Wildlife Area (not specified No. 5)	04/07/92	9,640	6,032	5,000	<6	<200
Mendota Wildlife Area (1½ miles south of Highway 180)	05/04/92	1,300	810	NR	<2	NR
Summary statistics	Median	5,601	3,517	2,050	<4	<200
	Minimum	1,300	810	1,300	<2	<200
	Maximum	9,640	6,032	5,000	<6	<200
	Number of observations	9	9	8	8	5

Notes: μg/l - Micrograms per liter.
mg/L - Milligrams per liter.
μS/cm - MicroSiemens per centimeter.
ND - Not detected.
NR - Not reported.
SU - Siemens unit.

Source: Reclamation 1999.

Historical water quality data for wells screened in the confined aquifer beneath the Corcoran Clay in the vicinity of MWA are presented in Table B-8.

Table B-8
Mendota Area Groundwater Quality Data Below Corcoran Clay

	Date Sampled	Screened Interval	EC μS/cm	TDS mg/L	Boron μg/L	Selenium μg/L
13s/15E 15G1	1-May-1988	384 (Total Depth)	740	NR	390	NR
13S/15E 35D2	1-May-1951	250-440	NR	480	NR	NR
	16-Oct-1952	250-440	NR	450	NR	NR
	14-Dec-1960	250-440	NR	432	300	NR
	3-Jan-1961	250-440	NR	432	300	NR
13S/15E 35D3	1-May-1951	460-735	NR	1,800	NR	NR
	16-Oct-1952	460-735	NR	1,800	NR	NR
	1-May-1951	460-735	NR	428	NR	NR
14S/15E 3H1	2-Mar-1948	480 (Total Depth)	960	500	NR	NR
	2-Mar-1949	480 (Total Depth)	NR	460	NR	NR
14S/15E 18E1	23-Aug-1951	560-850	1,700	1,210	1,300	NR
	17-Jul-1968	525-888	2,280	1,450	1,500	NR
	13-Aug-1951	525-888	1,808	1,300	3,500	NR
	12-Aug-1952	525-888	2,090	NR	1,200	NR
	2-Sep-1954	525-888	2,130	NR	500	NR
14S/15E 25H3	2-May-1951	520-705	2,800	1,700	NR	NR
	20-Oct-1952	520-705	3,400	1,800	NR	NR
	2-May-1951	520-705	2,891	1,572	1,350	NR
14S/15E 28L2M	1-Aug-1957	727-950	1,539	1,085	800	NR
14S/15E 28L5	15-Aug-1951	727-950	1,380	910	1,900	NR
	31-Aug-1954	727-950	1,940	NR	1,600	NR
	1-Aug-1957	727-950	1,530	NR	800	NR
	29-Jul-1958	727-950	1,460	NR	1,300	NR
	14-Aug-1959	727-950	1,460	NR	1,700	NR
	21-Jul-1960	727-950	1,400	NR	1,400	NR
	27-Sep-1961	727-950	1,470	NR	1,500	NR
	20-Jun-1962	727-950	1,460	NR	1,400	NR
	1-Aug-1963	727-950	1,500	NR	1,400	NR
	29-Oct-1965	727-950	1,600	NR	NR	NR
14S/15E 30M1	14-Aug-1951	670-1,260	1,790	1,200	2,200	NR
14S/15E 32N2	11-Sep-1968	544-986	1,540	468	1,500	NR
Summary Statistics		Median	1,777	1,025	1,326	
		Minimum	740	428	300	
		Maximum	3,400	1,800	3,500	
		Number of Observations	23	19	21	

Note: μg/L - Micrograms per liter.
 mg/L - Milligrams per liter.
 NR - Not recorded.
 S/cm - Siemens per centimeter.
 TDS - Total dissolved solids.

Source: Reclamation 1999.

Attachment 2

Mendota Wildlife Area Water Quality Data July 8 - September 8, 1999

Mendota Pool (Various Locations) Water Quality Data January 1994 - December 1999

**U.S. BUREAU OF RECLAMATION
DELTA-MENDOTA CANAL MONITORING PROGRAM
MP-110.12
(Washoe Ave)
Boron(mg/L)**

Date	Result	Date	Result	Date	Result	Date	Result	Date	Result
01/08/99	0.3	01/08/97	0.3	01/04/95	0.5	01/21/93	1.2	01/02/91	1.0
02/04/99	0.2	02/11/97	1.0	01/31/95	0.6	02/17/93	0.9	02/05/91	0.6
03/04/99	0.2	03/11/97	0.7	02/28/95	0.3	03/22/93	0.4	03/06/91	0.3
04/06/99	0.7	04/02/97	0.4	04/06/95	0.4	04/07/93	0.1	04/02/91	0.7
05/06/99	0.2	05/09/97	0.2	05/10/95	0.9	05/10/93	0.5	05/10/91	0.4
06/03/99	0.2	06/13/97	0.2	06/07/95	0.6	06/02/93	0.9	06/04/91	0.3
07/06/99	0.2	07/09/97	0.3	07/06/95	0.3	07/14/93	0.5	07/09/91	0.3
08/04/99	0.2	08/14/97	0.2	08/02/95	0.2	08/04/93	0.2	08/15/91	0.3
09/02/99	0.2	09/16/97	0.4	09/06/95	0.3	09/13/93	0.2	09/09/91	0.3
10/05/99	0.2	10/08/97	0.3	10/04/95	0.1	10/05/93	0.2	10/01/91	0.3
11/02/99	0.1	11/12/97	0.4	11/01/95	0.1	11/10/93	0.5	11/01/91	0.4
12/02/99	0.5	12/16/97*	1.3	12/06/95	0.2	12/08/93	0.5	12/10/91	1.0
01/13/98	0.2	01/03/96	0.4	01/13/94	0.5	01/08/92	1.5	01/03/90	0.4
02/19/98*	1.4	02/07/96	0.5	02/07/94	0.5	02/06/92	0.5	02/05/90	0.4
03/04/98	1.9	03/06/96	0.6	03/10/94	0.7	03/05/92	0.5	03/01/90	0.2
04/02/98	0.7	04/04/96	0.3	04/13/94	0.8	04/16/92	0.9	04/04/90	0.4
05/05/98	0.8	05/01/96	0.7	05/18/94	0.6	05/19/92	0.6	05/03/90	0.1
06/03/98	0.3	06/05/96	0.1	06/15/94	0.8	06/22/92	0.4	06/05/90	0.7
07/02/98	0.6	07/03/96	0.1	07/14/94	0.3	07/13/92	0.3	07/09/90	0.3
08/06/98	<0.2	08/07/96	0.3	08/10/94	0.2	08/19/92	0.3	08/02/90	0.2
09/01/98	<0.2	09/04/96	0.2	09/14/94	0.2	09/24/92	0.4	09/05/90	0.2
10/08/98	0.2	10/02/96	0.3	10/04/94	0.1	10/21/92	0.5	10/02/90	0.2
11/12/98	0.1	11/13/96	0.1	11/07/94	0.2	11/04/92	-	11/01/90	0.2
12/09/98	0.6	12/12/1996	0.3	12/06/94	0.2	12/03/92	0.6	12/05/90	0.7

- = Analysis not requested, sample not collected, or site not operational.
* = Canal very low causing concentration of all chemical species.-

**U.S. BUREAU OF RECLAMATION
DELTA-MENDOTA CANAL MONITORING PROGRAM
MP-110.12
(Washoe Ave)
Mercury (ug/L)**

Date	Result	Date	Result	Date	Result	Date	Result	Date	Result
01/12/99	0.005	01/08/97	0.02	01/04/95	<0.05	01/21/93	<0.2	01/02/91	-
02/04/99	0.006	02/11/97	0.06	01/31/95	<0.05	02/17/93	<0.2	02/05/91	-
03/04/99	0.018	03/11/97	<0.02	02/28/95	<0.05	03/22/93	<0.2	03/06/91	-
04/06/99	0.015	04/02/97	<0.02	04/06/95	0.69	04/07/93	<0.2	04/02/91	<0.2
05/06/99	<0.010	05/09/97	<0.02	05/10/95	0.22	05/10/93	<0.2	05/10/91	-
06/03/99	0.020	06/13/97	<0.02	06/07/95	0.16	06/02/93	<0.2	06/04/91	-
07/06/99	0.020	07/09/97	0.17	07/06/95	0.05	07/14/93	<0.2	07/09/91	-
08/04/99	0.010	08/14/97	<0.02	08/02/95	0.18	08/04/93	<0.2	08/15/91	-
09/02/99	<0.01	09/16/97	<0.02	09/06/95	0.07	09/13/93	<0.2	09/09/91	-
10/05/99	<0.01	10/08/97	<0.02	10/04/95	<0.02	10/05/93	<0.2	10/01/91	0.4
11/02/99	<0.01	11/12/97	<0.02	11/01/95	<0.02	11/10/93	<0.2	11/01/91	-
12/02/99	<0.01	12/16/97*	0.012	12/06/95	<0.02	12/08/93	<0.2	12/10/91	-
01/13/98	<0.02	01/03/96	<0.02	01/13/94	<0.2	01/08/92	-	01/03/90	-
02/19/98*	0.008	02/07/96	0.03	02/07/94	<0.2	02/06/92	-	02/05/90	-
03/04/98	0.005	03/06/96	0.04	03/10/94	<0.2	03/05/92	-	03/01/90	-
04/02/98	0.005	04/04/96	0.03	04/13/94	<0.2	04/16/92	0.3	04/04/90	<0.2
05/05/98	0.903	05/01/96	0.05	05/18/94	<0.2	05/19/92	<0.2	05/03/90	-
06/03/98	0.013	06/05/96	0.05	06/15/94	<0.2	06/22/92	<0.2	06/05/90	-
07/02/98	0.015	07/03/96	0.04	07/14/94	<0.2	07/13/92	<0.2	07/09/90	-
08/06/98	0.052	08/07/96	0.05	08/10/94	<0.2	08/19/92	<0.2	08/02/90	-
09/01/98	0.035	09/04/96	<0.10	09/14/94	<0.2	09/24/92	<0.2	09/05/90	-
10/08/98	0.007	10/02/96	<0.10	10/04/94	<0.2	10/21/92	<0.2	10/02/90	<0.2
11/12/98	0.022	11/13/96	0.0088	11/07/94	<0.2	11/04/92	-	11/01/90	-
12/09/98	0.013	12/12/1996	0.028	12/06/94	<0.04	12/03/92	<0.2	12/05/90	-

- = Analysis not requested, sample not collected, or site not operational.
* = Canal very low causing concentration of all chemical species.

U.S. BUREAU OF RECLAMATION
DELTA-MENDOTA CANAL MONITORING PROGRAM
MP-110.12
(Washoe Ave)
Selenium (ug/L)

Date	Result	Date	Result	Date	Result	Date	Result	Date	Result
01/08/99	1.3	01/08/97	3.2	01/04/95	6.0	01/21/93	11	01/02/91**	14
02/04/99	1.1	02/11/97	18	01/31/95	6.0	02/17/93	2.0	02/05/91	2.0
03/04/99	1.5	03/11/97	13	02/28/95	1.0	03/22/93	1.0	03/06/91	1.0
04/06/99	2.9	04/02/97	2.3	04/06/95	5.0	04/07/93	3.0	04/02/91	6.0
05/06/99	1.2	05/09/97	<2	05/10/95	16	05/10/93	<1	05/10/91	2.0
06/03/99	1.3	06/13/97	<2	06/07/95	10	06/02/93	5.0	06/04/91	<1
07/06/99	1.1	07/09/97	<2	07/06/95	3.0	07/14/93	3.0	07/09/91	<1
08/04/99	1.0	08/14/97	<2	08/02/95	1.0	08/04/93	<1	08/15/91	<1
09/02/99	0.7	09/16/97	3.8	09/06/95	2.0	09/13/93	<1	09/09/91	<1
10/05/99	0.9	10/08/97	<2	10/04/95	<1	10/05/93	<1	10/01/91	
11/02/99	0.9	11/12/97	2.1	11/01/95	<1	11/10/93	1.0	11/01/91	<1
12/02/99	5.3	12/16/97*	21	12/06/95	<1	12/08/93	1.0	12/10/91	2.0
01/13/98	<2	01/03/96	3.0	01/13/94	3.0	01/08/92	7.0	01/03/90	5.0
02/19/98*	24	02/07/96	2.0	02/07/94	1.0	02/06/92	1.0	02/05/90	2.0
03/04/98	24	03/06/96	7.0	03/10/94	2.0	03/05/92	<1	03/01/90	<1
04/02/98	7.5	04/04/96	2.0	04/13/94	2.0	04/16/92	2.0	04/04/90	1.0
05/05/98	11	05/01/96	11	05/18/94	1.0	05/19/92	1.0	05/03/90	<1
06/03/98	5.2	06/05/96	<1	06/15/94	1.0	06/22/92	<1	06/05/90	2.0
07/02/98	9.2	07/03/96	<1	07/14/94	<1	07/13/92	<1	07/09/90	<1
08/06/98	1.2	08/07/96	2.0	08/10/94	<1	08/19/92	<1	08/02/90	<1
09/01/98	1.3	09/04/96	1.0	09/14/94	<1	09/24/92	<1	09/05/90	<1
10/08/98	<0.4	10/02/96	<1	10/04/94	<1	10/21/92	<1	10/02/90	<1
11/12/98	1.0	11/13/96	<1	11/07/94	1.0	11/04/92	-	11/01/90	<1
12/09/98	11.0	12/12/96	<2	12/06/94	2.0	12/03/92	1.0	12/05/90	9.0

- = Analysis not requested, sample not collected, or site not operational.
* = Canal very low causing concentration of all chemical species.
** = Flows were reduced in the Delta-Mendota Canal during January 1991.

U.S. BUREAU OF RECLAMATION
DELTA-MENDOTA CANAL MONITORING PROGRAM
MP-110.12
(Washoe Ave)
Electrical Conductivity (us/cm)

Date	Result	Date	Result	Date	Result	Date	Result	Date	Result
01/08/99	465	01/08/97	315	01/04/95	866	01/21/93	1320	01/02/91	1210
02/04/99	306	02/11/97	464	01/31/95	773	02/17/93	968	02/05/91	1040
03/04/99	304	03/11/97	667	02/28/95	470	03/22/93	624	03/06/91	861
04/06/99	599	04/02/97	690	04/06/95	562	04/07/93	603	04/02/91	1020
05/06/99	346	05/09/97	-	05/10/95	901	05/10/93	707	05/10/91	665
06/03/99	401	06/13/97	398	06/07/95	377	06/02/93	881	06/04/91	612
07/06/99	330	07/09/97	304	07/06/95	440	07/14/93	726	07/09/91	672
08/04/99	386	08/14/97	-	08/02/95	270	08/04/93	301	08/15/91	624
09/02/99	319	09/16/97	580	09/06/95	436	09/13/93	354	09/09/91	503
10/05/99	489	10/08/97	547	10/04/95	165	10/05/93	373	10/01/91	688
11/02/99	439	11/12/97	809	11/01/95	198	11/10/93	711	11/01/91	644
12/02/99	704	12/16/97	1300	12/06/95	331	12/08/93	783	12/10/91	1040
01/13/98	494	01/03/96	207	01/13/94	660	01/08/92	1430	01/03/90	799
02/19/98	1640	02/07/96	670	02/07/94	538	02/06/92	866	02/05/90	728
03/04/98	1880	03/06/96	677	03/10/94	806	03/05/92	493	03/01/90	444
04/02/98	740	04/04/96	357	04/13/94	777	04/16/92	940	04/04/90	510
05/05/98	742	05/01/96	776	05/18/94	736	05/19/92	704	05/03/90	662
06/03/98	463	06/05/96	240	06/15/94	698	06/22/92	726	06/05/90	804
07/02/98	664	07/03/96	523	07/14/94	638	07/13/92	718	07/09/90	357
08/06/98	289	08/07/96	581	08/10/94	560	08/19/92	785	08/02/90	408
09/01/98	268	09/04/96	353	09/14/94	589	09/24/92	813	09/05/90	358
10/08/98	297	10/02/96	385	10/04/94	627	10/21/92	779	10/02/90	449
11/12/98	290	11/13/96	362	11/07/94	588	11/04/92	-	11/01/90	707
12/09/98	679	12/12/1996	483	12/06/94	728	12/03/92	883	12/05/90	1040

- = Analysis not requested, sample not collected, or site not operational.
* = Canal very low causing concentration of all chemical species.

**U.S. BUREAU OF RECLAMATION
DELTA-MENDOTA CANAL MONITORING PROGRAM
MP-116.48
(Check 21)
Average Calculated Daily Flow (cfs)**

Date	Reading	Date	Reading	Date	Reading	Date	Reading	Date	Reading
01/99	616	01/97	@	01/95	108	01/93	44	01/91	400
02/99	880	02/97	@	02/95	721	02/93	292	02/91	999
03/99	821	03/97	315	03/95	219	03/93	717	03/91	541
04/99	832	04/97	884	04/95	150	04/93	480	04/91	476
05/99	1694	05/97	1670	05/95	@	05/93	927	05/91	878
06/99	2132	06/97	2140	06/95	440	06/93	1390	06/91	1800
07/99	2271	07/97	2540	07/95	500	07/93	1890	07/91	2290
08/99	1863	08/97	1890	08/95	2100	08/93	2040	08/91	1900
09/99	1558	09/97	1530	09/95	1430	09/93	1360	09/91	1010
10/99	1331	10/97	861	10/95	1360	10/93	1190	10/91	1170
11/99	550	11/97	408	11/95	665	11/93	833	11/91	819
12/99	@	12/97	@	12/95	294	12/93	471	12/91	99
01/98	274	01/96	239	01/94	294	01/92	122	01/90	255
02/98	125	02/96	867	02/94	975	02/92	418	02/90	944
03/98	155	03/96	179	03/94	1020	03/92	799	03/90	995
04/98	148	04/96	472	04/94	708	04/92	575	04/90	1060
05/98	116	05/96	533	05/94	703	05/92	949	05/90	1170
06/98	77	06/96	2100	06/94	1770	06/92	1780	06/90	2170
07/98	431	07/96	2660	07/94	2040	07/92	1870	07/90	2650
08/98	2150	08/96	2360	08/94	1610	08/92	1540	08/90	2180
09/98	1700	09/96	1330	09/94	872	09/92	706	09/90	1300
10/98	1020	10/96	1250	10/94	1040	10/92	987	10/90	1540
11/98	460	11/96	517	11/94	492	11/92	585	11/90	409
12/98	119	12/96	183	12/94	10	12/92	83	12/90	21

@ = No flow.

**U.S. BUREAU OF RECLAMATION
DELTA-MENDOTA CANAL MONITORING PROGRAM
MP-110.12
(Washoe Ave)
pH units**

Date	Reading	Date	Reading	Date	Reading	Date	Reading	Date	Reading
01/08/99	7.82	01/08/97	7.49	01/04/95	8.00	01/21/93	7.79	01/02/91	9.25
02/04/99	7.67	02/11/97	6.52	01/31/95	7.26	02/17/93	7.53	02/05/91	8.09
03/04/99	7.35	03/11/97	6.66	02/28/95	7.24	03/22/93	7.71	03/06/91	6.85
04/06/99	8.21	04/02/97	8.32	04/06/95	8.07	04/07/93	8.05	04/02/91	8.22
05/06/99	7.77	05/09/97	-	05/10/95	6.36	05/10/93	7.26	05/10/91	7.91
06/03/99	8.04	06/13/97	7.84	06/07/95	7.26	06/02/93	8.56	06/04/91	7.60
07/06/99	7.77	07/09/97	7.33	07/06/95	9.08	07/14/93	8.09	07/09/91	7.83
08/04/99	6.07	08/14/97	-	08/02/95	8.18	08/04/93	7.27	08/15/91	7.83
09/02/99	7.84	09/16/97	6.76	09/06/95	7.53	09/13/93	7.77	09/09/91	7.35
10/05/99	7.77	10/08/97	8.58	10/04/95	6.90	10/05/93	7.52	10/01/91	7.39
11/02/99	7.75	11/12/97	7.04	11/01/95	8.48	11/10/93	7.80	11/01/91	7.65
12/02/99	7.54	12/16/97	6.96	12/06/95	7.76	12/08/93	7.30	12/10/91	7.50
01/13/98	7.72	01/03/96	7.2	01/13/94	7.39	01/08/92	8.50	01/03/90	7.61
02/19/98	7.90	02/07/96	7.64	02/07/94	6.92	02/06/92	7.73	02/05/90	7.55
03/04/98	8.50	03/06/96	7.96	03/10/94	7.21	03/05/92	7.25	03/01/90	7.67
04/02/98	8.02	04/04/96	8.2	04/13/94	7.65	04/16/92	8.20	04/04/90	7.77
05/05/98	8.58	05/01/96	9.11	05/18/94	7.58	05/19/92	7.90	05/03/90	7.87
06/03/98	8.56	06/05/96	9.72	06/15/94	6.59	06/22/92	7.20	06/05/90	7.56
07/02/98	7.85	07/03/96	7.77	07/14/94	7.01	07/13/92	7.89	07/09/90	7.85
08/06/98	7.72	08/07/96	7.42	08/10/94	7.91	08/19/92	-	08/02/90	7.52
09/01/98	7.66	09/04/96	7.51	09/14/94	7.24	09/24/92	7.66	09/05/90	7.52
10/08/98	7.05	10/02/96	7.81	10/04/94	7.42	10/21/92	7.78	10/02/90	7.04
11/12/98	6.65	11/13/96	7.88	11/07/94	6.58	11/04/92	-	11/01/90	7.96
12/09/98	8.74	12/12/1996	7.10	12/06/94	7.45	12/03/92	8.15	12/05/90	8.57

- = pH reading not available.

U.S. BUREAU OF RECLAMATION
DELTA-MENDOTA CANAL MONITORING PROGRAM
MP-110.12
(Washoe Ave)
Turbidity units

Date	Result	Date	Result	Date	Result	Date	Result	Date	Result
01/08/99	7	01/08/97	-	01/04/95	37.00	01/21/93	22.00	01/02/91	24
02/04/99	23	02/11/97	-	01/31/95	27.00	02/17/93	26.00	02/05/91	32
03/04/99	27	03/11/97	22	02/28/95	27.00	03/22/93	73.00	03/06/91	30
04/06/99	18	04/02/97	16	04/06/95	52.00	04/07/93	20.00	04/02/91	17
05/06/99	33	05/09/97	-	05/10/95	51.00	05/10/93	17.00	05/10/91	22
06/03/99	30	06/13/97	44	06/07/95	22.00	06/02/93	18.00	06/04/91	33.00
07/06/99	89	07/09/97	42	07/06/95	28.00	07/14/93	37.00	07/09/91	24
08/04/99	28	08/14/97	32	08/02/95	-	08/04/93	-	08/15/91	-
09/02/99	22	09/16/97	23	09/06/95	39.00	09/13/93	27.00	09/09/91	30
10/05/99	22	10/08/97	17	10/04/95	42.00	10/05/93	37.00	10/01/91	24
11/02/99	33	11/12/97	39	11/01/95	25.00	11/10/93	15.00	11/01/91	10
12/02/99	10	12/16/97	21	12/06/95	39.00	12/08/93	10.00	12/10/91	9.00
01/13/98	15	01/03/96	30	01/13/94	9.00	01/08/92	15.00	01/03/90	20
02/19/98	21	02/07/96	29	02/07/94	12.00	02/06/92	10.00	02/05/90	33
03/04/98	27	03/06/96	12	03/10/94	31.00	03/05/92	46.00	03/01/90	32
04/02/98	16	04/04/96	29	04/13/94	27.00	04/16/92	8.00	04/04/90	24
05/05/98	25	05/01/96	-	05/18/94	15.00	05/19/92	12.00	05/03/90	77
06/03/98	33	06/05/96	-	06/15/94	37.00	06/22/92	10.00	06/05/90	38
07/02/98	23	07/03/96	-	07/14/94	73.00	07/13/92	6.00	07/09/90	56
08/06/98	200	08/07/96	27	08/10/94	50.00	08/19/92	-	08/02/90	56
09/01/98	43	09/04/96	-	09/14/94	30.00	09/24/92	12.00	09/05/90	43
10/08/98	16	10/02/96	-	10/04/94	42.00	10/21/92	13.00	10/02/90	34
11/12/98	36	11/13/96	-	11/07/94	14.00	11/04/92	-	11/01/90	-
12/09/98	13	12/12/1996	-	12/06/94	15.00	12/03/92	10.00	12/05/90	22

- = Turbidity reading not available.

U.S. BUREAU OF RECLAMATION
DELTA-MENDOTA CANAL MONITORING PROGRAM
MP-116.48
Bass Ave

Selenium		EC		pH		Turbidity	
Date	Result	Date	Reading	Date	Reading	Date	Reading
01/08/99	1.3	01/08/99	464	01/08/99	7.71	01/08/99	13
02/04/99	1.0	02/04/99	322	02/04/99	7.75	02/04/99	18
03/04/99	1.6	03/04/99	308	03/04/99	7.53	03/04/99	22
04/06/99	3.2	04/06/99	575	04/06/99	8.29	04/06/99	-
05/06/99	1.3	05/06/99	372	05/06/99	7.28	05/06/99	36
06/03/99	1.7	06/03/99	434	06/03/99	7.86	06/03/99	32
07/06/99	1.1	07/06/99	291	07/06/99	7.33	07/06/99	291
08/04/99	0.8	08/04/99	264	08/04/99	6.78	08/04/99	34
09/02/99	0.5	09/02/99	309	09/02/99	6.12	09/02/99	18
10/05/99	0.6	10/05/99	448	10/05/99	7.62	10/05/99	27
11/02/99	1.1	11/02/99	492	11/02/99	7.9	11/02/99	28
12/02/99	2.4	12/02/99	522	12/02/99	8.22	12/02/99	21

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Etchegoinberry	8/11/1999									40														364	38		230				9.4E+07	
Etchegoinberry	9/8/1999									92									380						67						9.4E+07	
Etchegoinberry	9/22/1999																			8.74				685		81					9.4E+07	
Etchegoinberry	7/8/1999									42														380	43		230				9.4E+07	
Etchegoinberry	7/21/1999																			8.2				400		73					9.4E+07	
Firebaugh Canal	8/11/1999	60		80	0.1		14		0	22							8	2.7			2	0	23	269	28		170				9.4E+07	0
Firebaugh Canal	9/8/1999	80		90			17		0	41							9	2.7			2	0	32	366	34		210				9.4E+07	0
Firebaugh Canal	7/8/1999	70		90	0.1		15		0	27							8	3.4	7.8		2	0	24	293	30		170				9.4E+07	0
Firebaugh Canal	4/1/1999																							250								
Firebaugh Canal	4/2/1999																							280								
Firebaugh Canal	4/3/1999																							300								
Firebaugh Canal	4/4/1999																							310								
Firebaugh Canal	4/5/1999																							300								
Firebaugh Canal	4/6/1999																							300								
Firebaugh Canal	4/7/1999																							300								
Firebaugh Canal	4/8/1999																							300								
Firebaugh Canal	4/9/1999																							300								
Firebaugh Canal	4/10/1999																							305								
Firebaugh Canal	4/11/1999																							300								
Firebaugh Canal	4/12/1999																							245								
Firebaugh Canal	4/13/1999																							300								
Firebaugh Canal	4/14/1999																							300								
Firebaugh Canal	4/15/1999																							300								
Firebaugh Canal	4/16/1999																							320								
Firebaugh Canal	4/17/1999																							320								
Firebaugh Canal	4/18/1999																							260								
Firebaugh Canal	4/19/1999																							500								
Firebaugh Canal	4/20/1999																							500								
Firebaugh Canal	4/21/1999																							440								
Firebaugh Canal	4/22/1999																							480								
Firebaugh Canal	4/23/1999																							480								
Firebaugh Canal	4/24/1999																							450								
Firebaugh Canal	4/25/1999																							480								
Firebaugh Canal	4/26/1999																							420								
Firebaugh Canal	4/27/1999																							440								
Firebaugh Canal	4/28/1999																							460								
Firebaugh Canal	4/29/1999																							460								

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Firebaugh Canal	4/30/1999																							460								
Firebaugh Canal	5/1/1999																							440								
Firebaugh Canal	5/2/1999																							420								
Firebaugh Canal	5/3/1999																							400								
Firebaugh Canal	5/4/1999																							400								
Firebaugh Canal	5/5/1999																							400								
Firebaugh Canal	5/6/1999																							400								
Firebaugh Canal	5/7/1999																							400								
Firebaugh Canal	5/8/1999																							400								
Firebaugh Canal	5/9/1999																							400								
Firebaugh Canal	5/10/1999																							400								
Firebaugh Canal	5/11/1999																							410								
Firebaugh Canal	5/12/1999																							400								
Firebaugh Canal	5/13/1999																							400								
Firebaugh Canal	5/14/1999																							440								
Firebaugh Canal	5/15/1999																							440								
Firebaugh Canal	5/16/1999																							460								
Firebaugh Canal	5/17/1999																							420								
Firebaugh Canal	5/18/1999																							450								
Firebaugh Canal	5/19/1999																							450								
Firebaugh Canal	5/20/1999																							451								
Firebaugh Canal	5/21/1999																							400								
Firebaugh Canal	5/22/1999																							400								
Firebaugh Canal	5/23/1999																							400								
Firebaugh Canal	5/24/1999																							420								
Firebaugh Canal	5/25/1999																							500								
Firebaugh Canal	5/26/1999																							500								
Firebaugh Canal	5/27/1999																							520								
Firebaugh Canal	5/28/1999																							525								
Firebaugh Canal	5/29/1999																							500								
Firebaugh Canal	5/30/1999																							500								
Firebaugh Canal	5/31/1999																							505								
Firebaugh Canal	6/1/1999																															
Firebaugh Canal	6/2/1999																															
Firebaugh Canal	6/3/1999																															
Firebaugh Canal	6/4/1999																															
Firebaugh Canal	6/5/1999																															

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Firebaugh Canal	6/6/1999																															
Firebaugh Canal	6/7/1999																															
Firebaugh Canal	6/8/1999																															
Firebaugh Canal	6/9/1999																															
Firebaugh Canal	6/10/1999																															
Firebaugh Canal	6/11/1999																															
Firebaugh Canal	6/12/1999																															
Firebaugh Canal	6/13/1999																															
Firebaugh Canal	6/14/1999																							420								
Firebaugh Canal	6/15/1999																							270								
Firebaugh Canal	6/16/1999																							280								
Firebaugh Canal	6/17/1999																							305								
Firebaugh Canal	6/18/1999																							315								
Firebaugh Canal	6/19/1999																							280								
Firebaugh Canal	6/20/1999																							300								
Firebaugh Canal	6/21/1999																							275								
Firebaugh Canal	6/22/1999																							290								
Firebaugh Canal	6/23/1999																							255								
Firebaugh Canal	6/24/1999																							265								
Firebaugh Canal	6/25/1999																							270								
Firebaugh Canal	6/26/1999																							260								
Firebaugh Canal	6/27/1999																							260								
Firebaugh Canal	6/28/1999																							250								
Firebaugh Canal	6/29/1999																							260								
Firebaugh Canal	6/30/1999																							260								
Firebaugh Canal	7/1/1999																							300								
Firebaugh Canal	7/2/1999																							220								
Firebaugh Canal	7/3/1999																							220								
Firebaugh Canal	7/4/1999																							250								
Firebaugh Canal	7/5/1999																							250								
Firebaugh Canal	7/6/1999																							190								
Firebaugh Canal	7/7/1999																							255								
Firebaugh Canal	7/8/1999																							210								
Firebaugh Canal	7/9/1999																							255								
Firebaugh Canal	7/10/1999																							255								

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Firebaugh Canal	7/11/1999																							230								
Firebaugh Canal	7/12/1999																							225								
Firebaugh Canal	7/13/1999																							195								
Firebaugh Canal	7/14/1999																							235								
Firebaugh Canal	7/15/1999																							250								
Firebaugh Canal	7/16/1999																							335								
Firebaugh Canal	7/17/1999																							330								
Firebaugh Canal	7/18/1999																							315								
Firebaugh Canal	7/19/1999																							235								
Firebaugh Canal	7/20/1999																							220								
Firebaugh Canal	7/21/1999																							310								
Firebaugh Canal	7/22/1999																							300								
Firebaugh Canal	7/23/1999																							275								
Firebaugh Canal	7/24/1999																							270								
Firebaugh Canal	7/25/1999																							290								
Firebaugh Canal	7/26/1999																							280								
Firebaugh Canal	7/27/1999																							270								
Firebaugh Canal	7/28/1999																							240								
Firebaugh Canal	7/29/1999																							220								
Firebaugh Canal	7/30/1999																							290								
Firebaugh Canal	7/31/1999																							300								
Firebaugh Canal	8/1/1999																							300								
Firebaugh Canal	8/2/1999																							290								
Firebaugh Canal	8/3/1999																							350								
Firebaugh Canal	8/4/1999																							350								
Firebaugh Canal	8/5/1999																							295								
Firebaugh Canal	8/6/1999																							280								
Firebaugh Canal	8/7/1999																							270								
Firebaugh Canal	8/8/1999																							265								
Firebaugh Canal	8/9/1999																							305								
Firebaugh Canal	8/10/1999																							260								
Firebaugh Canal	8/11/1999																							250								
Firebaugh Canal	8/12/1999																							290								
Firebaugh Canal	8/13/1999																							280								

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Firebaugh Canal	8/14/1999																							295								
Firebaugh Canal	8/15/1999																							300								
Firebaugh Canal	8/16/1999																							280								
Firebaugh Canal	8/17/1999																							260								
Firebaugh Canal	8/18/1999																							250								
Firebaugh Canal	8/19/1999																							260								
Firebaugh Canal	8/20/1999																							240								
Firebaugh Canal	8/21/1999																							240								
Firebaugh Canal	8/22/1999																							240								
Firebaugh Canal	8/23/1999																							260								
Firebaugh Canal	8/24/1999																							240								
Firebaugh Canal	8/25/1999																							210								
Firebaugh Canal	8/26/1999																							295								
Firebaugh Canal	8/27/1999																							285								
Firebaugh Canal	8/28/1999																							280								
Firebaugh Canal	8/29/1999																							280								
Firebaugh Canal	8/30/1999																							295								
Firebaugh Canal	8/31/1999																							295								
Firebaugh Canal	9/1/1999																							260								
Firebaugh Canal	9/2/1999																							285								
Firebaugh Canal	9/3/1999																							310								
Firebaugh Canal	9/4/1999																							320								
Firebaugh Canal	9/5/1999																							320								
Firebaugh Canal	9/6/1999																							300								
Firebaugh Canal	9/7/1999																							335								
Firebaugh Canal	9/8/1999																							270								
Firebaugh Canal	9/9/1999																							305								
Firebaugh Canal	9/10/1999																							340								
Firebaugh Canal	9/11/1999																							330								
Firebaugh Canal	9/12/1999																							290								
Firebaugh Canal	9/13/1999																							295								
Firebaugh Canal	9/14/1999																							350								
Firebaugh Canal	9/15/1999																							300								
Firebaugh Canal	9/16/1999																							330								

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Firebaugh Canal	9/17/1999																						345									
Firebaugh Canal	9/18/1999																						350									
Firebaugh Canal	9/19/1999																						355									
Firebaugh Canal	9/20/1999																						340									
Firebaugh Canal	9/21/1999																						315									
Firebaugh Canal	9/22/1999																						340									
Firebaugh Canal	9/23/1999																						365									
Firebaugh Canal	9/24/1999																						365									
Firebaugh Canal	9/25/1999																						360									
Firebaugh Canal	9/26/1999																						360									
Firebaugh Canal	9/27/1999																						400									
Firebaugh Canal	9/28/1999																						400									
Firebaugh Canal	9/28/1999																						370									
Firebaugh Canal	9/30/1999																						360									
Firebaugh Canal	10/1/1999																						380									
Firebaugh Canal	10/2/1999																						400									
Firebaugh Canal	10/3/1999																						400									
Firebaugh Canal	10/4/1999																						484									
Firebaugh Canal	10/5/1999																						471									
Firebaugh Canal	10/6/1999																						488									
Firebaugh Canal	10/7/1999																						494									
Firebaugh Canal	10/8/1999																						473									
Firebaugh Canal	10/9/1999																						405									
Firebaugh Canal	10/10/1999																						450									
Firebaugh Canal	10/11/1999																						461									
Firebaugh Canal	10/12/1999																						484									
Firebaugh Canal	10/13/1999																						501									
Firebaugh Canal	10/14/1999																						490									
Firebaugh Canal	10/15/1999																						483									
Firebaugh Canal	10/16/1999																						498									
Firebaugh Canal	10/17/1999																						418									
Firebaugh Canal	10/18/1999																						455									
Firebaugh Canal	10/19/1999																						399									
Firebaugh Canal	10/20/1999																						473									

Attachment 3

Delta-Mendota Canal at Washoe Ave. Jan 1990 - December 1999

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide	
Firebaugh Canal	10/21/1999																							527									
Firebaugh Canal	10/22/1999																							515									
Firebaugh Canal	10/23/1999																							497									
Firebaugh Canal	10/24/1999																							513									
Firebaugh Canal	10/25/1999																							492									
Firebaugh Canal	10/26/1999																							462									
Firebaugh Canal	10/27/1999																							463									
Firebaugh Canal	10/28/1999																							465									
Firebaugh Canal	10/29/1999																							489									
Firebaugh Canal	10/30/1999																							481									
Firebaugh Canal	10/31/1999																							474									
Mendota Dam	7/8/1999	90		110	0.2		20		0	44							10		4.4	7.8	2	0	35	395	47		240				9.4E+07	0	
Mendota Dam	7/21/1999																			7.7				228		72					9.4E+07		
Mendota Dam	8/11/1999	70		80	0.1		16		0	27							8		4		4	0	68	296	29		170				9.4E+07	0	
Mendota Dam	9/8/1999	80		100			18		0	40							10		3.2		2	0	39	378	37		230				9.4E+07	0	
Mendota Dam	9/22/1999																			7.93				507		78.8					9.4E+07		
Mendota Wildlife Refuge	7/8/1999	90		110	0.2		19		0	68							9		2.9	8	2	0	60	513	55		310				9.4E+07	0	
Mendota Wildlife Refuge	8/11/1999	100		130	0.2		18		0	90							9		1.6		2	0	82	633	71		360				9.4E+07	0	
Mendota Wildlife Refuge	9/8/1999	120		110			21		20	148							10		0		3	0	142	920	89		530				9.4E+07	0	
Mowry Bridge	7/8/1999									27														291	30		180					9.4E+07	
Mowry Bridge	7/21/1999																			7.7				274		73						9.4E+07	
Mowry Bridge	8/11/1999									22														266	29		170					9.4E+07	
Mowry Bridge	9/8/1999									39														29		200						9.4E+07	
Mowry Bridge	9/22/1999																			8.26				550		77.2						9.4E+07	
Outside Canal	8/11/1999	60		80	0.1		14		0	22							7		2.8		2	0	22	270	28		160				9.4E+07	0	
Outside Canal	9/8/1999	70		90	-		16		0	39							9		2.3		2	0	29	346	29		210				9.4E+07	0	
Outside Canal	7/8/1999	70		90	0.1		17		0	28							9		3.4	7.9	2	0	26	295	31		180				9.4E+07	0	
Outside Canal	01/08/1999																						1.3										
Outside Canal	02/04/1999																						1.0										
Outside Canal	03/04/1999																						1.6										
Outside Canal	04/06/1999																						2.9										
Outside Canal	05/06/1999																						1.5										
Outside Canal	06/03/1999																						1.1										
Outside Canal	07/06/1999																						1.2										

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Outside Canal	08/04/1999																					1.0										
Outside Canal	09/02/1999																					1.1										
Outside Canal	10/05/1999																					0.9										
Outside Canal	11/02/1999																					1.3										
Outside Canal	12/02/1999																					1.2										
Outside Canal	4/2/1999																							510								
Outside Canal	4/3/1999																							505								
Outside Canal	4/4/1999																							565								
Outside Canal	4/5/1999																							590								
Outside Canal	4/6/1999																							600								
Outside Canal	4/7/1999																							600								
Outside Canal	4/8/1999																							590								
Outside Canal	4/9/1999																							600								
Outside Canal	4/10/1999																							590								
Outside Canal	4/11/1999																							600								
Outside Canal	4/12/1999																							610								
Outside Canal	4/13/1999																							600								
Outside Canal	4/14/1999																							620								
Outside Canal	4/15/1999																							580								
Outside Canal	4/16/1999																							600								
Outside Canal	4/17/1999																							580								
Outside Canal	4/18/1999																							500								
Outside Canal	4/19/1999																							400								
Outside Canal	4/20/1999																							420								
Outside Canal	4/21/1999																							400								
Outside Canal	4/22/1999																							400								
Outside Canal	4/23/1999																							395								
Outside Canal	4/24/1999																							380								
Outside Canal	4/25/1999																							400								
Outside Canal	4/26/1999																							430								
Outside Canal	4/27/1999																							380								
Outside Canal	4/28/1999																							380								
Outside Canal	4/29/1999																							380								
Outside Canal	4/30/1999																							380								

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Tribalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Outside Canal	5/1/1999																						340									
Outside Canal	5/2/1999																						360									
Outside Canal	5/3/1999																						340									
Outside Canal	5/4/1999																															
Outside Canal	5/5/1999																															
Outside Canal	5/6/1999																															
Outside Canal	5/7/1999																															
Outside Canal	5/8/1999																															
Outside Canal	5/9/1999																															
Outside Canal	5/10/1999																						350									
Outside Canal	5/11/1999																						300									
Outside Canal	5/12/1999																						300									
Outside Canal	5/13/1999																						290									
Outside Canal	5/14/1999																						355									
Outside Canal	5/15/1999																						360									
Outside Canal	5/16/1999																						360									
Outside Canal	5/17/1999																						315									
Outside Canal	5/18/1999																						305									
Outside Canal	5/19/1999																						300									
Outside Canal	5/20/1999																						360									
Outside Canal	5/21/1999																						310									
Outside Canal	5/22/1999																						305									
Outside Canal	5/23/1999																						300									
Outside Canal	5/24/1999																						380									
Outside Canal	5/25/1999																						380									
Outside Canal	5/26/1999																						400									
Outside Canal	5/27/1999																						410									
Outside Canal	5/28/1999																						400									
Outside Canal	5/29/1999																						405									
Outside Canal	5/30/1999																						400									
Outside Canal	5/31/1999																						400									
Outside Canal	6/1/1999																						410									
Outside Canal	6/2/1999																						420									
Outside Canal	6/3/1999																						410									

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Outside Canal	6/4/1999																							400								
Outside Canal	6/5/1999																							400								
Outside Canal	6/6/1999																							400								
Outside Canal	6/7/1999																							400								
Outside Canal	6/8/1999																							400								
Outside Canal	6/9/1999																							400								
Outside Canal	6/10/1999																							400								
Outside Canal	6/11/1999																							400								
Outside Canal	6/12/1999																							400								
Outside Canal	6/13/1999																							400								
Outside Canal	6/14/1999																							470								
Outside Canal	6/15/1999																							420								
Outside Canal	6/16/1999																							425								
Outside Canal	6/17/1999																							445								
Outside Canal	6/18/1999																							455								
Outside Canal	6/19/1999																							450								
Outside Canal	6/20/1999																							450								
Outside Canal	6/21/1999																							400								
Outside Canal	6/22/1999																							420								
Outside Canal	6/23/1999																							465								
Outside Canal	6/24/1999																							450								
Outside Canal	6/25/1999																							430								
Outside Canal	6/26/1999																							430								
Outside Canal	6/27/1999																							435								
Outside Canal	6/28/1999																							205								
Outside Canal	6/29/1999																							200								
Outside Canal	6/30/1999																							200								
Outside Canal	7/1/1999																							185								
Outside Canal	7/2/1999																							205								
Outside Canal	7/3/1999																							210								
Outside Canal	7/4/1999																							210								
Outside Canal	7/5/1999																							175								
Outside Canal	7/6/1999																							200								
Outside Canal	7/7/1999																							195								

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Outside Canal	7/8/1999																						190									
Outside Canal	7/9/1999																						180									
Outside Canal	7/10/1999																						175									
Outside Canal	7/11/1999																						165									
Outside Canal	7/12/1999																						200									
Outside Canal	7/13/1999																						200									
Outside Canal	7/14/1999																						200									
Outside Canal	7/15/1999																						180									
Outside Canal	7/16/1999																						185									
Outside Canal	7/17/1999																						185									
Outside Canal	7/18/1999																						200									
Outside Canal	7/19/1999																						200									
Outside Canal	7/20/1999																						165									
Outside Canal	7/21/1999																						160									
Outside Canal	7/22/1999																						160									
Outside Canal	7/23/1999																						170									
Outside Canal	7/24/1999																						175									
Outside Canal	7/25/1999																						200									
Outside Canal	7/26/1999																															
Outside Canal	7/27/1999																															
Outside Canal	7/28/1999																															
Outside Canal	7/29/1999																															
Outside Canal	7/30/1999																															
Outside Canal	7/31/1999																															
Outside Canal	10/1/1999																															
Outside Canal	10/2/1999																															
Outside Canal	10/3/1999																															
Outside Canal	10/4/1999																						417									
Outside Canal	10/5/1999																						456									
Outside Canal	10/6/1999																						470									
Outside Canal	10/7/1999																						452									
Outside Canal	10/8/1999																						447									
Outside Canal	10/9/1999																						439									
Outside Canal	10/10/1999																						430									

Mendota Pool Monitoring - Surface Water

	Date Sampled	Alkalinity	Arsenic	Bicarbonate	Boron	Bromide	Calcium	Carbon - Total Organic	Carbonate	Chloride	Chromium	Copper	Fluoride	Hardness	Iron	Lead	Magnesium	Manganese	Nitrate	pH	Potassium	Selenium	Sodium	Specific Conductance	Sulfate	Temp.	TDS	Trihalomethane formation potential	Turbidity	Zinc	QA/QC ID #	Hydroxide
Outside Canal	10/11/1999																							437								
Outside Canal	10/12/1999																							460								
Outside Canal	10/13/1999																							478								
Outside Canal	10/14/1999																							472								
Outside Canal	10/15/1999																							457								
Outside Canal	10/16/999																							479								
Outside Canal	10/17/1999																							447								
Outside Canal	10/18/1999																							410								
Outside Canal	10/19/1999																							411								
Outside Canal	10/20/1999																							446								
Outside Canal	10/21/1999																							501								
Outside Canal	10/22/1999																							504								
Outside Canal	10/23/1999																							475								
Outside Canal	10/24/1999																							480								
Outside Canal	10/25/1999																							469								
Outside Canal	10/26/1999																							440								
Outside Canal	10/27/1999																							439								
Outside Canal	10/28/1999																							444								
Outside Canal	10/29/1999																							455								
Outside Canal	10/30/1999																							463								
Outside Canal	10/31/1999																							458								
West of Fordels	7/8/1999								46															402	49	260					9.4E+07	
West of Fordels	7/21/1999																			7.8				285		73					9.4E+07	
West of Fordels	8/11/1999									35														343	39	210					9.4E+07	
West of Fordels	9/8/1999								47																45	240					9.4E+07	
West of Fordels	9/22/1999																			8.68				469	81.3						9.4E+07	